CLAIMS

1. A computer program product, tangibly embodied in an information carrier, the computer program product comprising instructions operable to cause data processing apparatus to perform operations comprising:

5   displaying a user interface in a client program, the user interface having a plurality of controls, the plurality of controls including multiple types of controls, each control having a state;

for each control in the plurality of controls, storing the state of the control as a first state for the control;

10   receiving user input comprising a change to the state of a control in the plurality of controls;

updating the state of the control based on the user input;

storing the updated state of the control as a second state for the control;

receiving user input comprising a request to undo the change; and

15   restoring the state of the control to reflect the first state for the control.

2. The product of claim 1, wherein the multiple types of controls include one or more of a text field control type, a radio button control type, a table control type, a tray control type, and a menu control type.

3. The product of claim 1, wherein the state of the control includes a data state and a view

20   state, and wherein the operations further comprise:

determining whether the change affects the data state or the view state of the control; and

restoring the state of the control only if the change affects the data state of the control.

4. The product of claim 1, wherein the operations further comprise:

receiving user input comprising a request to redo the change to the control; and

25   restoring the state of the control to reflect the second state for the control.

5. The product of claim 1, wherein the user input comprising the request to undo the change is received while focus is not on the control.

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6. The product of claim 1, wherein restoring the state of the control includes restoring the state of another control that shares data with the control.

7. The product of claim 1, wherein restoring the state of the control includes restoring the state of another control that shares data with the control.

5   8. The product of claim 1, wherein restoring the state of the control occurs prior to transmitting the state of the control to a server.

9. A computer program product, tangibly embodied in an information carrier, the computer program product comprising instructions operable to cause data processing apparatus to perform operations comprising:

10   generating at least one data structure that stores application data, and associations between the application data and one or more application controls that are rendered based on the stored application data;

      detecting that the at least one data structure has changed from a prior state to a new state;

      recording the prior state of the at least one data structure;

15   receiving user input requesting that an undo operation be performed; and

      performing the undo operation by restoring the at least one data structure to the prior state.

10. The product of claim 9, wherein the at least one data structure is at least one data tree.

11. The product of claim 9, wherein the at least one data structure is stored on a client device.

20   12. The product of claim 9, wherein the application controls include multiple types of controls.

13. The product of claim 9, wherein the associations between the application data and the application controls are defined by metadata for the application.

14. An apparatus comprising:

       means for displaying a user interface in a client program, the user interface having a plurality of controls, the plurality of controls including multiple types of controls, each control having a state;

5   means for, for each control in the plurality of controls, storing the state of the control as a first state for the control;

       means for receiving user input comprising a change to the state of a control in the plurality of controls;

       means for updating the state of the control based on the user input;

10   means for storing the updated state of the control as a second state for the control;

       means for receiving user input comprising a request to undo the change; and

       means for restoring the state of the control to reflect the first state for the control.